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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/617,731	07/14/2003	Mitsuo Yamada	023971-0291	3612

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EXAMINER	
RAYFORD, SANDRA M	
ART UNIT	**PAPER NUMBER**
1772	

DATE MAILED: 04/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/617,731	YAMADA ET AL.	
	Examiner	Art Unit	
	Sandra M. Nolan	1772	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-14 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-14 is/are rejected.

7)☒ Claim(s) 1-5 and 7-14 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 7/03 and 9/03.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claims

1. Claims 1-14 are pending.

Information Disclosure Statements

2. The information disclosure statement (IDS) submitted on 14 July 2003 and 23 September 2003 were considered by the examiner.

On the 14 July IDS: citation A2 was not supplied; EP 0297888 was not listed.

On the 23 September IDS: the 2001 date for citation B1 was extracted from the document by the examiner.

Summary of Base Claims

3. The base claims of the application are claims 1 and 14. They can be summarized as follows:

Claim 1 covers a tube comprising:

-1+ first cylindrical resin layers A including at least one resins selected from the group consisting of: polybutylene terephthalate (PBT), polybutylene naphthalate (PBN), polyethylene terephthalate (PET), and polyethylene naphthalate (PEN); and

-1+ second cylindrical resin layers B formed generally coaxially with A and including 1+ of PBT copolymer and PBN copolymer,

wherein a cylindrical resin layer forming an innermost layer of the tube is electrically conductive.

Claim 14 covers a tube for piping in a vehicle fuel system comprising:

-1+ first cylindrical resin layers A including at least one resins selected from the group consisting of: polybutylene terephthalate (PBT), polybutylene naphthalate (PBN), polyethylene terephthalate (PET), and polyethylene naphthalate (PEN); and

-1+ second cylindrical resin layers B formed generally coaxially with A and including 1+ of PBT copolymer and PBN copolymer,

wherein a cylindrical resin layer forming an innermost layer of the tube is electrically conductive and fuel is in direct contact with the inner surface of the innermost layer. Note: Claim 14 recites "fuel" as a requirement.

Priority

4. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Objections

5. Claims 1-5 and 7-14 are objected to as indefinite because of the following informalities:

a. As recited in claims 1 and 14, the phrases "polybutylene terephthalate. . . copolymer" and "polybutylene naphthalate . . . copolymer" are indefinite. What kinds of copolymers are intended?

b. In claim 12, are both the first and second layers conductive?

c. In claims 7-9, is the hydrogenated dimer acid component required? It does not appear to a member of the Markush group of acids.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

6. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishino et al (US 6,089,278) in view of Jadamus et al (US 6,428,866).

Note: For purposes of this rejection, the examiner assumes that the dimer acids recited in some of the dependent claims were meant to be members of the Markush group of acids recited there. That is, hydrogenated dimer acids are not required reagents for those claims.

Nishino teaches tubes for transporting fuel (title, abstract) having conductive fillers in the innermost layer (col. 7, lines 20-24), a middle layer containing PBN (abstract) and outer layer that is a polyester (col. 8, lines 48-53). The layers may have similar thicknesses to those in applicants' tubes (col. 8, lines 25-33). The middle layer may contain polyalkylene naphthalate copolymers derived from terephthalic acid (col. 8, line 6), and tetramethylene glycol (col. 8, lines 15-16). The middle layer may contain polyalkylene naphthalate modified with elastomers (col. 8, lines 17-24).

Nishino's PBN's are deemed useful polyesters for its outer layer.

Nishino fails to teach that its innermost layer is conductive polyester and that the innermost layer is 3 to 30% of the total thickness of the tube.

Jadamus teaches conductive polyester resins in the innermost layers of pipes for transporting fuels (col. 5, lines 31-38). The polyesters used include PBN and impact modified forms thereof (col. 4, lines 26-29). The innermost layers are 1:5 to 1:100 of the total thickness (col. 5, lines 18-21). Its pipes are antistatic (col. 1, lines 12-15).

"Pipes" are deemed to be tubes.

Since PBN is made using 1,4-butanediol, the limitations of claim 9 are met by Jadamus (see col. 4, lines 26-29).

The patents are analogous because they both deal with multilayer conduits containing one or more polyester layers.

It would have been obvious to one having ordinary skill in the art at the time of the invention to employ the conductive, impact modified PBN innermost layers of Jadamus in the tubes of Nishino in order to give them antistatic properties.

It is deemed desirable to make fuel tubes antistatic so that static charges do not build up on their surfaces.

The use of elastomer particles, such as ethylene/propylene rubber particles, as impact modifiers for polymers is well known.

8. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishino and Jadamus as applied to claims 1-14 above, and further in view of Morohoshi et al (pregrant publication 2003/0121560A1).

Note: For purposes of this rejection, the examiner assumes that the dimer acids recited in claims 7-9 were NOT meant to be members of the Markush group of acids recited there. That is, hydrogenated dimer acids are required reagents for claims 7-9.

Nishino and Jadamus are discussed above. They fail to teach the use of applicants' dimer acid ingredients in making their polyesters.

Morohoshi et al teaches the use of applicants' polyesters (see par. 0025 through par. 0042, especially par. 0037) in tubes for fuels (abstract). The tubes are lightweight (par. 0001).

The three references are analogous because they all deal with polyester-containing conduits for fuels.

It would have been obvious to one having ordinary skill in the art at the time of the invention to employ the polyesters of Morohoshi in the composites suggested by the combination of Nishino and Jadamus, above, in order to make the composites lightweight.

It is deemed desirable to make antistatic fuel tubes that are lightweight in order to improve the fuel economy of vehicles that include them.

Double Patenting

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

10. Claims 1-14 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-18 of copending Application No. 10/980,313 (based on the claims recited in US 2005/0069702A1) in view of Jadamus.

This is a provisional obviousness-type double patenting rejection.

The claims of the '313 application cover tubes containing PBN in one or more layers.

Jadamus is discussed above.

The references are analogous because both deal with polyester-based tubes.

It would have been obvious to one having ordinary skill in the art at the time of the invention to employ the conductive innermost layer of Jadamus in the tubes of the '313 application to render them suitable for transporting fuels.

It is deemed desirable to make polyester tubes suitable for fuel transport in view of the moldability polyesters and the desirability of ease of fabrication when making fuel tubes.

Citation as of Interest

11. Smith (US 6,591,871) teaches multilayer tubes having polyalkylene terephthalates in all layers.

Conclusion

Any inquiry concerning this communication should be addressed to Sandra M. Nolan-Rayford, at telephone number 571/272-1495. She can be reached Monday through Thursday, from 6:30 am to 4:00 pm, ET. If attempts to reach the examiner are unsuccessful, contact her supervisor, Harold Pyon, at 571/272-1498.

The fax number for patent application documents is 703/872-9306.

S. M. Nolan-Rayford
Primary Examiner
Technology Center 1700

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